

SCIENCE NOTEBOOK #372
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SOLAR POLAR SATELLITE

ANNCR: THE AMERICAN AND EUROPEAN SPACE AGENCIES PLAN TO SEND TWO SATELLITES OVER THE NORTH AND SOUTH POLES OF THE SUN. VOA SCIENCE EDITOR LASZLO DOSA REPORTS ON PLANS FOR THIS UNIQUE MISSION.

VOICE: WE HAVE SENT SPACECRAFT TO THE MOON, TO THE PLANETS MERCURY, VENUS, MARS AND JUPITER. RIGHT NOW, WE HAVE SPACECRAFT HEADED FOR THE PLANETS SATURN AND URANUS. WE HAVE SENT SPACECRAFT INTO ORBIT AROUND THE SUN. BUT EVERY ONE OF THESE INTERPLANETARY PROBES HAS REMAINED IN THE ECLIPTIC PLANE OF THE ORBIT OF THE PLANETS, MORE OR LESS PARALLEL WITH THE EQUATOR OF THE SUN.

EVERY ONE OF THESE MISSION HAS BEEN ONLY TWO-DIMENSIONAL, LEAVING US WITH A VERY LIMITED FIRSTHAND KNOWLEDGE OF THE REST OF THE SOLAR SYSTEM. THE DESIRE TO ADD A THIRD DIMENSION TO OUR EXPLORATION OF THE SUN AND ITS PLANETARY SYSTEM HAS PROMPTED THE U.S. AND EUROPEAN SPACE AGENCIES TO MAKE PLANS TO BREAK OUT OF THE PLANETS' ORBITAL PLANE AND SEND SPACECRAFT OVER THE POLES OF THE SUN.

TENTATIVE
TENTATIVE PLANS CALL FOR THE LAUNCH IN 1983 OF TWO PROBES --ONE BUILT IN THE UNITED STATES, THE OTHER IN EUROPE -- FROM ABOARD THE AMERICAN SPACE SHUTTLE. THE HEAVILY INSTRUMENTED SPACECRAFT WOULD BE DIRECTED ON A PATH ALONG THE ECLIPTIC PLANE TO JUPITER. THEY WOULD SWING AROUND THE HUGE PLANET AND USE JUPITER'S GRAVITY TO PUSH THEM OUT OF THE ECLIPTIC PLANE IN THE DIRECTION OF THE SUN.

VOICE:
(CONT)

ONCE PAST JUPITER, ONE PROBE WILL GO ON A NORTHBOUND PATH, THE OTHER ON A SOUTHBOUND ONE. THEY WILL PASS OVER THE NORTH AND SOUTH POLES OF THE SUN. SLOWED DOWN BY THE SUN'S GRAVITATIONAL ATTRACTION, THE TWO SPACECRAFT WILL MAKE A HALF-CIRCLE AROUND THE SUN, CROSSING ITS EQUATORIAL PLANE, PASSING OVER THE OPPOSITE POLES AND THEN FLY BACK IN THE DIRECTION OF JUPITER'S ORBIT. MISSION PLANNERS ESTIMATE IT WILL TAKE ABOUT FIVE YEARS FROM THE LAUNCH UNTIL THE SECOND PAIR OF SOLAR POLAR PASSAGES.

THE INSTRUMENTS ABOARD THE TWO SPACECRAFT ARE EXPECTED TO RETURN IMPORTANT NEW KNOWLEDGE ON THE SOLAR WIND, COSMIC RAYS, AND THE THREE-DIMENSIONAL STRUCTURE OF THE SOLAR CORONA, THE UPPERMOST REGION OF THE SUN'S ATMOSPHERE. THIS INFORMATION WILL CONTRIBUTE TO A BETTER UNDERSTANDING OF EVENTS AROUND THE SUN, WHICH SHAPE AND CONTROL OUR OWN PLANET'S ENVIRONMENT IN SPACE.

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